Multidisciplinary in-situ simulation in acute medicine of the elderly wards.
Improved confidence in patient management, increased awareness in multidisciplinary team roles, and identified remediable areas of risk.

Ishwinder Thethy, Caroline White, Sidra Kosar, Charlotte Squires, Wendy Morley, Nolan Arulraj.
Medicine of the Elderly Department, Royal Infirmary Edinburgh, EH16 4SA

Introduction

The World Health Organisation recognises that simulation facilitates learning in a supportive environment. This encourages evaluation of practice and system errors with a multidisciplinary team approach.[1] Furthermore, in –situ simulation, whereby training is conducted in actual patient care units, can be used to evaluate system competence and identify factors that predispose to errors.

Aims

Medicine of the Elderly consultants at Royal Infirmary of Edinburgh identified management of falls, delirium, hypoglycaemia as areas of mortality and morbidity. We designed and introduced in-situ simulation training to:

> Evaluate and identify human factors predisposing to error
> Improve management of falls, delirium and hypoglycaemia
> Provide MDT training promoting effective teamwork

Methods

The scenarios are in keeping with departmental protocols and were delivered on the wards utilising the equipment and staff.
Participants included junior doctors, staff nurses, clinical support workers and medical students
Post session feedback questionnaires were used to assess immediate benefit and proposed long-term application of learning
Checklists were used to assess key steps in management and identify human factors contributing to error

Results

Table 1. Latent human factors identified

Cognition
• Clinical support workers were delegated tasks to get equipment and fluids, but were unfamiliar with the location of these, e.g., i.v. fluids
• Doctors unaware of dose and volume of dextrose to correct hypoglycaemia
• Staff lacked knowledge of location of hypobox on 2 wards
• Doctors lacking knowledge of existence/location of hypoglycaemia protocol
• Doctors inexperienced in moving and handling
• Lack of knowledge of how to safely hoist a patient with a fractured NOF off the floor – simulated patient's legs went akimbo when hoisted
• Doctors lack of knowledge of cervical spine assessment post-fall, prior to moving patient safely

Physical Environment
• Lack of space to safely hoist patient off the floor
• Hypobox found in back of random cupboard in treatment room
• Glucagon stored in locked fridge on ward, and unable to find nurse who had the keys

Device/Product Design
• Ward Hypobox inadequately stocked
• Arrest Trolley stocked with an inappropriate drug which was also out of date
• Hoist failure – ran out of battery – when hoisting simulated patient off the floor

Table 2: Changes to be actioned on relevant wards

Changes to be actioned on relevant wards
• Have a designated area for ward hypoboxes
• Educate Clinical support workers on location of equipment and fluids
• Educate staff on location of extra battery for hoist – have a designated known location for this
• Look into Arrest trolley checking and stocking
• Introduce manual moving and handling in the induction for doctors working on the wards

Graph 1

Hypoglycaemia Data

Table 3. Key learning points

Clinical knowledge/technical skills
• Management of Hypoglycaemia
• Management of Falls
• Management of Delirium
• Airway Management
• A to E assessment
• Prescription of emergency sedation
• Prescription of analgesia
• Manual Handling

Non-technical Skills / Behaviour
Teamwork and leadership
• Confidence in teamwork
• Communication
• Good Leadership styles
• Knowing threshold for calling for help
Situational Awareness, Decision making and Task Management:
a) General:
• Unfamiliar environments can be challenging
• Task Delegation
b) In management of hypoglycaemia:
• Knowing hypoglycaemia protocol is on the back of the BM chart
c) In management of delirium:
• Maximal orientation for environment before using medication
• Using the "getting to know me" form
• Try to improve environment e.g., 'teddy' in this case
• Involve family when patient attempting to leave ward
• Engage with delirious patient
d) In management of falls:
• Have enough people to help move/manoeuvre patients

Graph 2. Mean confidence levels in managing the clinical emergencies pre and post session (measured on 10-point likert Scale)

Graph 3. Overall Participant Feedback

Conclusion:
This project has been shown to subjectively improve participant confidence in the management of these scenarios. Participants reported improved understanding of the multidisciplinary team. During the simulation sessions, latent human factors on the ward have been identified

Future Work:
2 further sessions are planned . Disseminating information on human factors to relevant wards and teams through departmental meetings for rectification.

References:
1. Issenberg et al. Patient safety training Simulations based on Competency Criteria of the Accreditation Council for Graduate Medical Education. *Mount Sinai Journal of Medicine* 2011; 78:842-853.
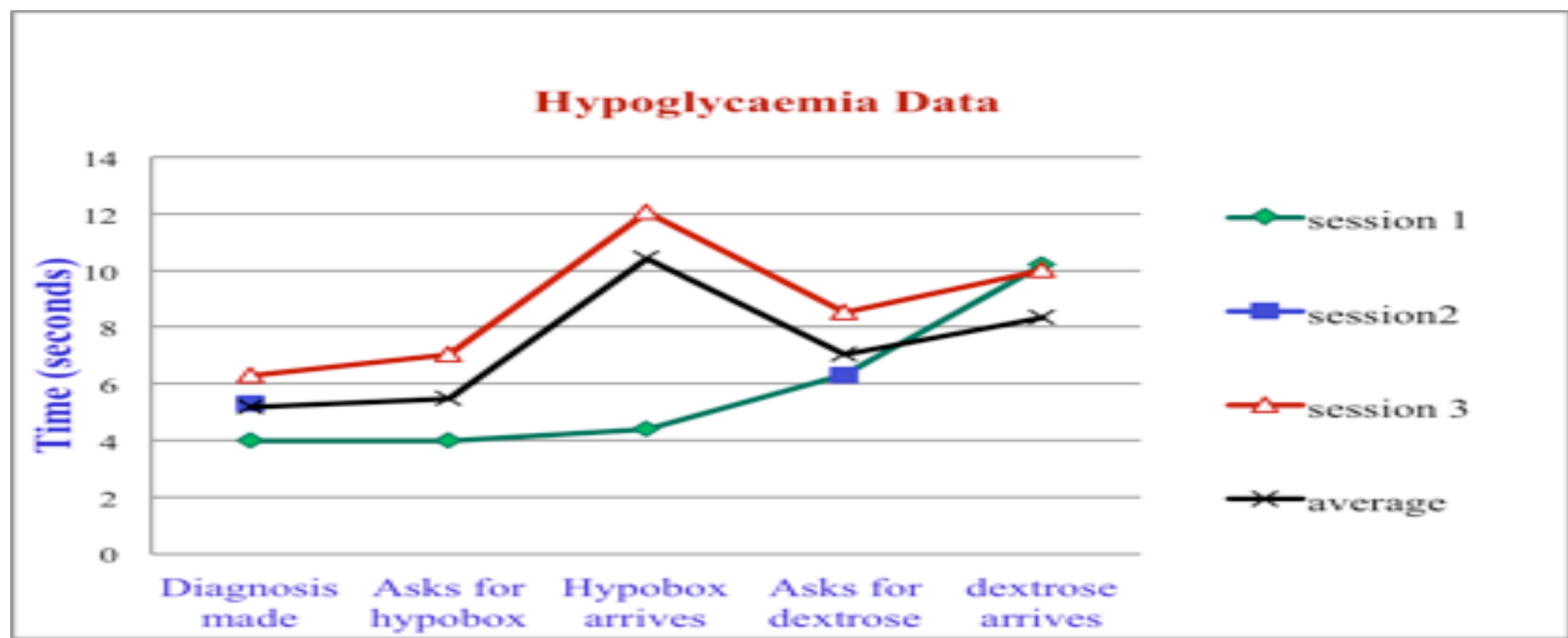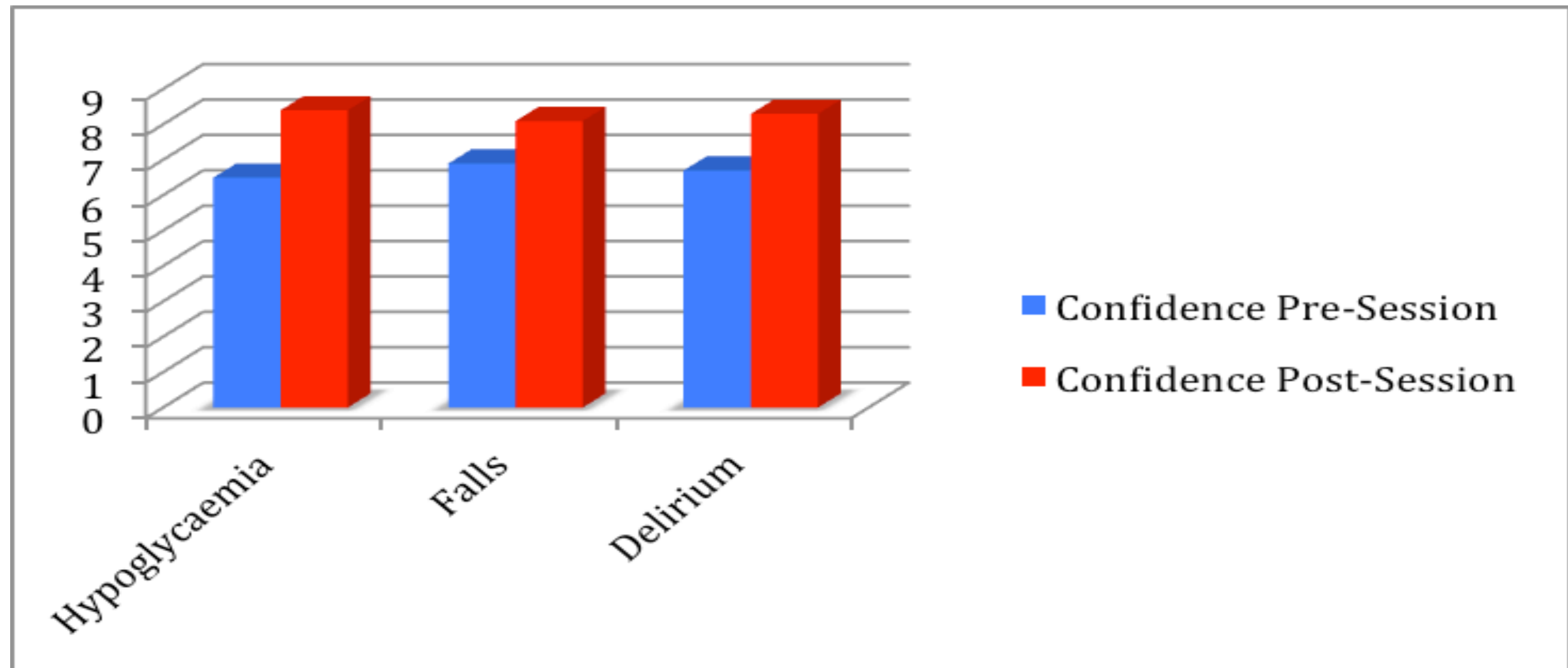2. Patterson et al. In situ simulation: detection of safety threats and teamwork training in a high risk emergency environment. *BMJ Qual Saf 2013;* 22:468-477.